REMARKS

Claims 1-9 are pending in the present application. Claims 1 and 5-7 have been amended. Claims 8 and 9 have been presented herewith.

Priority Under 35 U.S.C. 119

Applicant notes the Examiner's acknowledgment of the Claim for Priority under 35 U.S.C. 119, and receipt of the certified copy of Japanese Priority Application No. 2001-160692. **Applicant respectfully notes that a certified copy of Japanese Priority Application No. 2001-246268 will be provided in due course**.

Information Disclosure Statement

Applicant acknowledges receipt of the Information Disclosure Citation Form PTO-A820 along with the current Office Action dated July 26, 2005. However, the Examiner has failed to initial the Information Disclosure Citation Form to indicate that Japanese Patent Publication No. 2000-084716 has been considered and will be cited of record.

Accordingly, enclosed is a courtesy copy of the above noted Information Disclosure Citation Form as originally submitted along with the Information Disclosure Statement filed January 31, 2002. **The Examiner is respectfully requested to provide an initialed, dated copy of the Information Disclosure Citation Form indicative that both references listed thereon have been considered and will be**

cited of record.

Drawings

Enclosed are two (2) Annotated Drawing Sheets wherein Figs. 7 and 14 have been corrected to improve spelling and grammar. Also enclosed are two (2) drawing Replacement Sheets incorporating the above noted corrections. **The Examiner is respectfully requested to acknowledge receipt and acceptance of the drawing Replacement Sheets.**

Specification

Regarding the incorporation of essential material in the specification, Applicant acknowledges the requirement that it would be necessary to amend the disclosure of the present application to include the material incorporated by reference, **in the event that** the material must be relied upon to overcome any objection, rejection, or other requirement imposed by the Office. As noted previously, a certified copy of Japanese Priority Application No. 2001-246268 will be submitted in due course.

The abstract has been corrected in the manner as suggested by the Examiner, and to improve form. Accordingly, the Examiner is respectfully requested to acknowledge acceptance of the corrected abstract.

The specification has been objected to under 37 C.F.R. 1.75(d)(1) as allegedly failing to provide proper antecedent basis for the claimed subject matter. The Examiner

has alleged that the claim feature "mass of said impurity" lacks antecedent basis, because the specification discloses impurity in terms of density and change in density as on page 12, lines 19-26. Claims 1-7 have correspondingly been objected to for the above noted reasons. This objection is respectfully traversed for the following reasons.

The following is a definition from Random House Webster's College Dictionary (1995):

> mass – n. 1. a body of coherent matter, usu. of indefinte shape: *a mass of dough*. 2. a collection of incoherent particles, parts, or objects regarded as forming one body: *a mass of sand*...

As described beginning on page 12, line 3 of the present application with respect to Fig. 2, an impurity movement mass Δ C (xi, yi) is determined as the function of distance r1 from the pileup position and the distance r2 from the S/D profile position 132 of the closest interface. As subsequently set forth, C (x,y) is defined as impurity density in (x,y). Moreover, in the corresponding example calculation, impurity movement mass Δ C (xi, yi) is described as $2x10^{16}cm^{-3}$.

Claim 1 features in combination "a mass of said impurity in each of said cells moving to said impurity pileup portion from each of said cells is determined as an impurity density as a function of a distance r1 to said impurity pileup portion from each of said cells, and a function of a distance r2 to said source or said drain from each of said cells". It should be understood that "mass" in this instance may be interpreted as a collection of particles, parts or objects regarded as forming a body, and that the mass of

the impurity that is moving is determined as an impurity density.

Accordingly, Applicant respectfully submits that the specification provides proper antecedent for the claimed subject matter "mass of said impurity", and that the specification and claims are thus in compliance with 37 C.F.R. 1.75(d)(1). Accordingly, the Examiner is respectfully requested to withdraw the corresponding objections to the specification and claims 1-7 for at least the above reasons.

Claim Rejections-35 U.S.C. 112

Claims 1-7 have been rejected under 35 U.S.C. 112, second paragraph, as being indefinite. This rejection is respectfully traversed for the following reasons.

Applicant respectfully submits that "a mass of said impurity" has sufficient antecedent basis in claim 1. Applicant therefore respectfully submits that claims 1 and 3 are in compliance with 35 U.S.C. 112, second paragraph.

Claim 6 has been amended to delete "a ninth step", to improve antecedent. With further regard to claim 6, the method for modeling the semiconductor device is featured as "storing data representing a magnitude of a reverse short channel effect". Applicant respectfully submits that the meaning of this corresponding feature should be clear on its face, in that corresponding data is stored. Applicant respectfully emphasizes that breath of a claim should not be equated with indefiniteness, and that claim 6 should thus be considered as in compliance with 35 U.S.C. 112, second paragraph.

Also, claim 7 has been amended to improve antecedent, and should thus be in

compliance with 35 U.S.C. 112, second paragraph.

Double Patenting Rejection

Claims 1 and 5 have been rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,594,625. This rejection is respectfully traversed for the following reasons.

The Examiner is respectfully directed to Manual of Patent Examining Procedure Section 804 II.B.1. As emphasized in the above noted section, any analysis employed in an obviousness-type double patenting rejection parallels the guidelines for analysis of a 35 U.S.C. 103 obviousness determination. As further emphasized, any obviousness-type double patenting rejection should make clear:

> "(A) The differences between the inventions defined by the conflicting claims - a claim in the patent compared to a claim in the application; and
>
> "(B) The reasons why a person of ordinary skill in the art would conclude that the invention defined in the claim **> at issue would have been < an obvious variation of the invention defined in a claim in the patent."

The Examiner has acknowledged that the conflicting method claims are not identical. The Examiner has however alleged that the conflicting method claims are not patentably distinct from each other "because claim 5 negates the patentable distinction of the claim 1, i.e. the positions of drain and source are ignored, making the distance r2 a zero value. Thus, yielding a solution which is merely identical to the claim 1 in

HA'625".

Applicant firstly respectfully submits that claim 1 of U.S. Patent No. 6,594,625 does not feature "(f) setting data of a position of a source or a drain in said Si layer". Claim 1 of U.S. Patent No. 6,594,625 also fails to feature that "a mass of said impurity in each of said cells moving to said impurity pileup portion from each of said cells is determined as an impurity density as a function of a distance r1 to said impurity pileup portion from each of said cells, and a function of a distance r2 to said source or said drain from each of said cells". **Clearly, claim 1 of the Patent is not specifically concerned with and does not feature a source, a drain, a distance r1 and a distance r2**.

In an effort to establish that claim 1 of the present application would have been obvious in view of claim 1 of the Patent, despite claim 1 of the Patent failing to feature a source, a drain, a distance r1 and a distance r2, the Examiner has asserted that claim 5 somehow "negates" the features of claim 1. Applicant respectfully disagrees and asserts that the Examiner's position is clearly improper for at least the following reasons.

Claim 5 of the present application further features that a plurality of sources and drains exist in the Si layer, and "setting data in which the data of a position of a specified one of said sources or a data of a position of a specified one of said drains is able to be ignored selectively". That data of a position of one of a plurality of sources, or that data of a position of one of a plurality of drains may be ignored selectively, does

not render distance r2 in claim 1 of the present application a zero value. The features of claim 5 do not justify disregarding the features of claim 1 in the manner as suggested by the Examiner. It is well settled that each and every feature of a claim must be considered in any analysis of a 35 U.S.C. 103 obviousness determination. Since the Examiner has failed to properly consider all of the features of claim 1, the obviousness determination in view of U.S. Patent No. 6,594,625 as offered by the Examiner is clearly flawed. Applicant therefore respectfully submits that claims 1 and 5 of the present application would not have been obvious in view of U.S. Patent No. 6,594,625, and that the rejection under the judicially created doctrine of obvious-type double patenting is clearly improper for at least these reasons.

With further regard to this rejection, as noted above, the Examiner has alleged that the features of claim 5 of the application would "negate" the patentable features of claim 1, particularly making the distance r2 a zero value. **The Examiner has however failed to address the distance r1 as featured in claim 1 of the present application, and has consequently failed to establish how this corresponding feature of claim 1 would have been obvious in view of claim 1 of the Patent.** Accordingly, Applicant respectfully submits that the double patenting rejection of claims 1 and 5 is improper for at least these additional reasons.

With further regard to this rejection, as noted above, the Examiner has asserted on page 8 of the current Office Action that it would have been obvious "to take claims of HA'625 patent and apply them to the instant application because such admission would

have simplified the process of designing the model based system architecture".

As noted above, any obvious-type double patenting rejection must make clear the reasons why a person of ordinary skill would conclude that the invention defined in the claim at issue **is an obvious variation of** the invention defined in a claim in the Patent. The meaning of the Examiner's allegation that it would have been obvious "to take" the claims of the Patent and "apply them to" the instant application is unclear. The idea of applying the claims of the Patent to claims 1 and 5 of the application does not establish obviousness of the claims of the application. Accordingly, Applicant respectfully submits that this rejection of claims 1 and 5 under obviousness-type double patenting is improper for at least these additional reasons.

Claim Rejections-35 U.S.C. 103

Claims 1 and 7 have been rejected under 35 U.S.C. 103(a) as being unpatentable over the Kumashiro reference (U.S. Patent No. 6,154,717) in view of the Lim et al. reference (Journal of Modeling and Simulation of Microsystems). This rejection is respectfully traversed for the following reasons.

As emphasized previously, the method for modeling a semiconductor device process of claim 1 features in combination that "a mass of said impurity in each of said cells moving to said impurity pileup portion from each of said cells is determined as an impurity density as a function of a distance r1 to said impurity pileup portion from each of said cells, and a function of a distance r2 to said source or said drain from each of

said cells". Applicant respectfully submits that the method for modeling a semiconductor device process of claim 1 would not have been obvious in view of the prior art as relied upon by the Examiner for at least the following reasons.

The Examiner has acknowledged that the primarily relied upon the Kumashiro reference does not disclose setting data of a position of a source or a drain in an Si layer, and determination of a mass of the impurity in the cells moving to the impurity pileup portion as noted above. In order to overcome these acknowledged deficiencies, the Examiner has alleged at the bottom of page 9 of the Office Action that among other things, the Lim et al. reference "teaches that the rate of diffusion for the impurities is shown to be function of two distances (LI 1999: Pg. 52, Equation 1)".

However, as described beginning in column 1, page 52 of the Lim et al. reference, equation (1) is featured where y represents the distance across the channel and L_{eff} is the metallurgical channel length of the MOSFET. These distances y and L_{eff} do not respectively correspond to a distance r1 "to said impurity pileup portion from each of said cells" and a distance r2 "to said source or said drain from each of said cells", as would be necessary to meet the features of claim 1. That is, the above noted distances y and L_{eff} in the Lim et al. reference are merely channel lengths of the MOSFET. These distances in the Lim et al. reference are not related to an impurity pileup portion and the cells, or related to a source or a drain from the cells. Since the Lim et al. reference fails to disclose the above noted features of claim 1, the Lim et al. reference clearly fails to overcome the above noted deficiencies of the primarily relied

upon Kumashiro reference. Applicant therefore respectfully submits that the method for modeling a semiconductor device process of claim 1 would not have been obvious in view of the prior art as relied upon by the Examiner taken singularly or together, and that this rejection of claims 1-7 is improper for at least these reasons.

Regarding claim 2, the Lim et al. reference as relied upon by the Examiner does not disclose or suggest distance r2. Applicant therefore respectfully submits that claim 2 would not have been obvious in view of the prior art as relied upon by the Examiner taken singularly or together, for at least the above reasons.

With regard to claim 3, the Examiner has acknowledged that the Kumashiro reference and the Lim et al. reference do not teach "measuring distances in form of solid angle, hence impurity flux is also not shown in the form of solid angle". Applicant firstly respectfully submits that the Examiner's comments regarding impurity flux are not entirely clear, because claim 3 does not specifically recite impurity flux. Moreover, since the relied upon prior art does not consider solid angles as acknowledged by the Examiner, it should be readily clear that the relied upon prior art does not disclose or even remotely suggest a movement mass determined as a function of a solid angle. In absence of a relied upon prior art teaching that calculates a movement mass as a function of a solid angle, this rejection would appear to be based merely on impermissible hindsight. That is, the prior art as relied upon does not show any determination as a function of a solid angle. Applicant therefore respectfully submits that claim 3 would not have been obvious in view of the prior art as relied upon by the

Examiner taken singularly or together for at least these additional reasons.

Regarding claim 5, column 1, lines 7-14 of the Kumashiro reference as specifically relied upon by the Examiner does not disclose or even remotely suggest assuming a plurality of sources and drains, and setting data in which a position of a specified one of the sources or a specified one of the drains may be ignored selectively. The above noted portion of the Kumashiro reference as specifically relied upon by the Examiner does not consider the position of sources or drains. Applicant therefore respectfully submits that claim 5 would not have been obvious in view of the prior art as relied upon by the Examiner for at least these additional reasons.

Conclusion

The Examiner is respectfully requested to reconsider and withdraw the corresponding rejections, and to pass the claims of the present application to issue, for at least the above reasons.

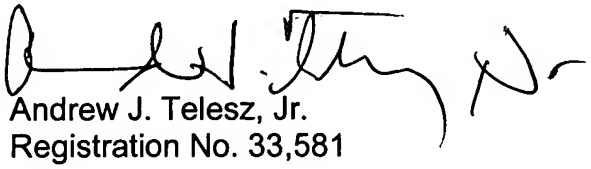
In the event that there are any outstanding matters remaining in the present application, please contact Andrew J. Telesz, Jr. (Reg. No. 33,581) at (571) 283-0720 in the Washington, D.C. area, to discuss these matters.

Pursuant to the provisions of 37 C.F.R. 1.17 and 1.136(a), the Applicant hereby petitions for an extension of one (1) month to November 26, 2005, for the period in which to file a response to the outstanding Office Action. The required fee of $120.00 should be charged to Deposit Account No. 50-0238.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment for any additional fees that may be required, or credit any overpayment, to Deposit Account No. 50-0238.

Respectfully submitted,

VOLENTINE FRANCOS & WHITT, P.L.L.C.



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Enclosures: Copies of Information Disclosure Citation Form
Two (2) drawing Annotated Sheets
Two (2) drawing Replacement Sheets

Fig.6

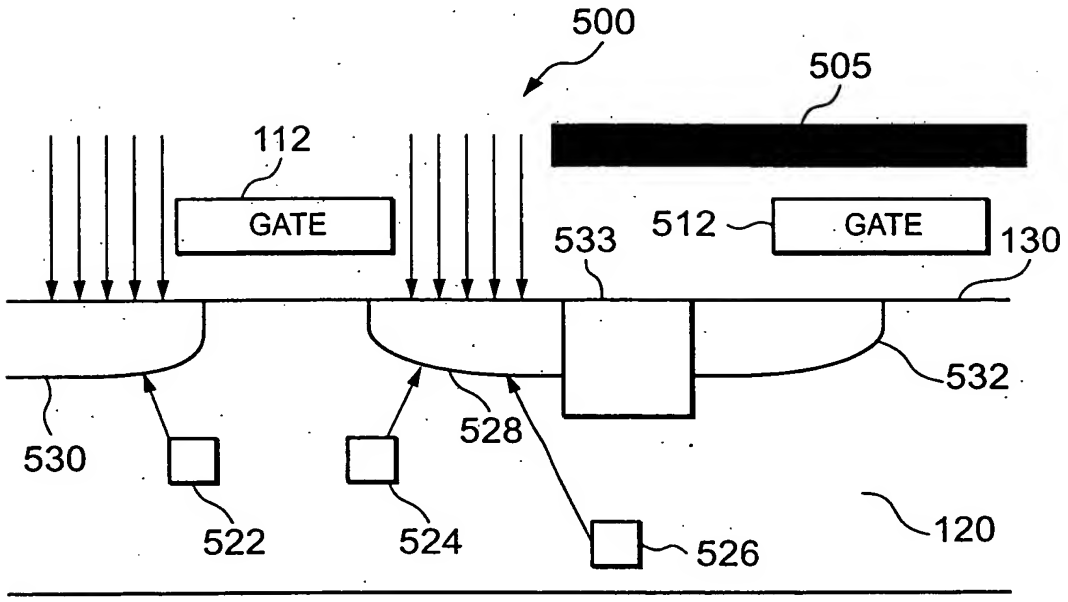

Fig.7

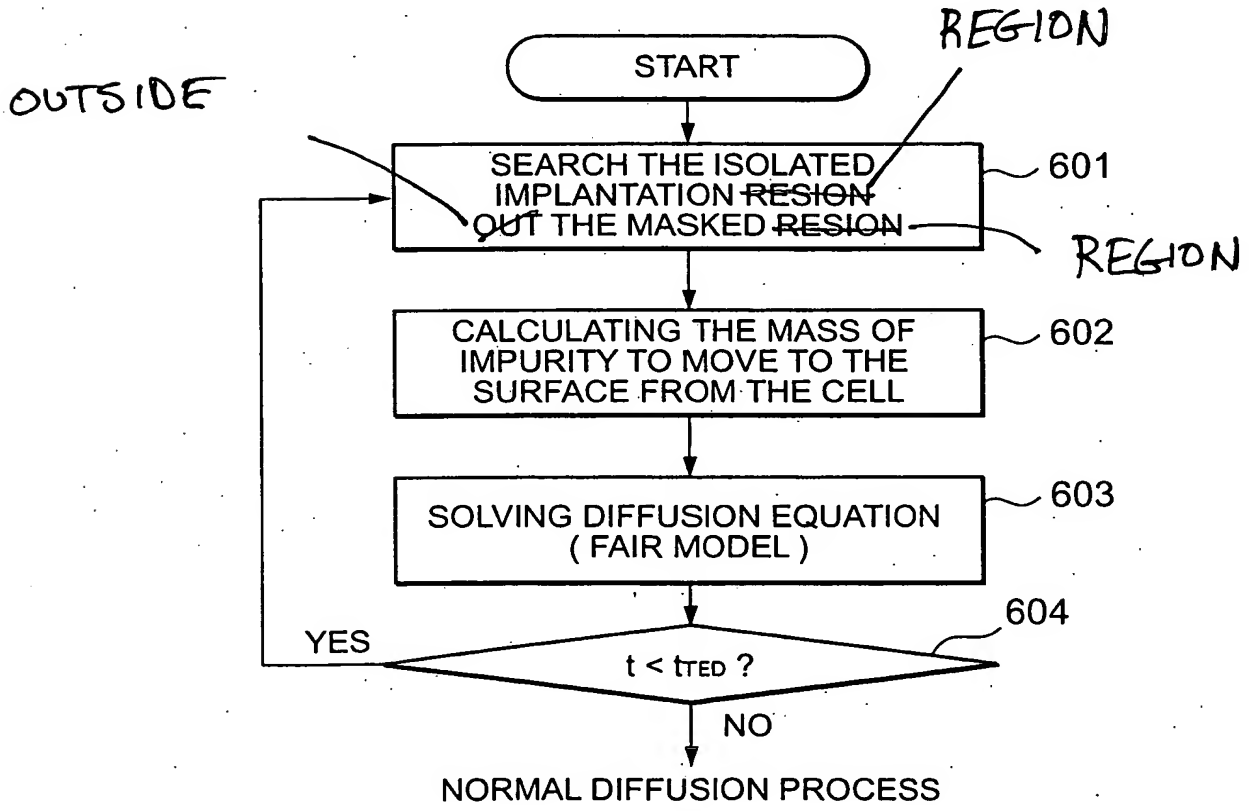

Fig.14